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ABSTRACT

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The Behavioral Treatment of Obesity

in Adolescent Boys

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Running Head: Behavioral Weight Control for Adolescents

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Abstract

Two adolescent boys with a history of rapidly increasing obesity participated in a behavioral weight reduction program. The multi-dimensional treatment package consisted of those behavioral techniques most often shown to be effective in treating obese adults. While the program was not effective in reversing the increasing obesity it was successful in reducing the rate of the weight gain. During the treatment phase the subjects average monthly weight gain was markedly reduced compared to baseline averages, and lower than the rate expected for children this age. Directions for further research with this clinical population are presented.

The Behavioral Treatment of Obesity
in Two Adolescent Boys

The last decade has witnessed a plethora of published reports documenting the efficacy of applying behavioral techniques to the treatment of obesity (Stunkard, 1972; Abramson, 1973; Hall & Hall, 1974). Although the contribution of each component of the behavior modification program has yet to receive extensive controlled research, most successful behavioral programs have included one or more of the following components: self monitoring (Romanczyk, 1974), goal setting (Mann, 1972), nutritional and exercise counseling (Levitz & Stunkard, 1972), social reinforcement (Moore & Crum, 1969), tangible operant consequences (Bernard, 1968), covert conditioning and cognitive reconstructing strategies (Cautela, 1966; Mahoney & Mahoney, 1975), self reinforcement (Jeffrey, 1973) and stimulus control instructions (Stuart, 1967).

While the results of the behavioral program are clearly encouraging, it must be noted that the supporting data is based almost exclusively on obese adult populations. A comprehensive review of the literature has revealed that behavioral treatment programs with overweight children has been extremely limited. In a recently published work (Aragona, Cassady & Drabman, 1975) it was demonstrated that behavior modification techniques can be successfully used to enable parents to help their children lose weight. Fifteen overweight girls between the ages of 5 and 11 served as subjects in this study in which parents were the primary change agents for their overweight children. Foxx (1972) reported that a social reinforcement procedure resulted in considerable weight loss for an institutionalized obese retarded adolescent female. Dinhoff, Rickard and Colwick (1972) found that the application of gradually increasing

weight loss contracts led to substantial weight reduction in an "emotionally disturbed" 10 year old boy attending a therapeutic summer camp.

It is a documented finding that overweight children tend to become overweight adults (Crisp, Douglas, Ross & Stonehill, 1970). In a series of longitudinal studies it was reported that 80% of overweight girls become overweight women, as compared to only 18% of average weight girls (Abraham & Nordsieck, 1960) while 63% of obese boys become obese men, as compared to only 10% of average weight boys (Abraham, Collins & Nordsieck, 1971). The odds against an overweight child becoming a normal weight adult are 28 to 1 for those who did not reduce during adolescence (Stunkard & Burt, 1967). While adolescence seems to be a critical time period within which to treat obesity, it is also commonly held by most experts that adolescence is probably the most difficult period in which to lose weight (Eden, 1975).

The research reported here represents an attempt to apply behavioral techniques shown to be effective in treating overweight adults to two obese adolescent boys. In this study the therapist worked directly with the child, attempting to teach specific behavioral techniques. With the exception of a brief initial 15 minute orientation meeting two weeks prior to the start of the program, there was no parent-therapist communication for the duration of the program. In addition to the previously mentioned active participant role of the child, this research differs from previously cited case studies (Foxy, 1972; Dinoff, Rickard & Colunick, 1972) in that the subjects were normally functioning adolescents living at home and attending public school.

MethodSubjects

Two male children were referred by the school nurse for the problem of obesity and not because of any school related problems. Subject 1 was a twelve year ten month old white male in the sixth grade. He was 67½ inches in height and weight 216 pounds. Percentage overweight was defined as present weight minus ideal weight divided by ideal weight (according to published tables of physical growth for children - Proudfit & Robinson, 1953). Subject 1 was 74% overweight. Subject 2 was a thirteen year eleven month old white male in the seventh grade. He was 63 inches in height and weighed 200 pounds. Subject 2 was 85% overweight. According to the nurse's referral, each child had been involved with numerous diets and weight loss programs in the past with no reported success. The experimenter arranged a meeting with each subject at which the child was asked if he would like to participate in a weight reduction program. It was explained that the program would be conducted during non-academic school hours (i.e., study hall) and that the child could terminate participation whenever he desired. Each child expressed willingness to participate. Subsequent to this meeting a conference between the parents of each child and the experimenter was held. The parents were informed that their child had the opportunity to participate in a weight reduction program designed to teach children "how to lose weight themselves." Parents were asked to sign a parent permission form and to deposit with the therapist \$15 which was to be used as part of a reward program. Parents were also instructed to have their family physician consent to each child's participation and

indicate that it was medically safe for the child to take part in the program as described. Immediately prior to and throughout the program, neither child was receiving psychotherapy nor drug therapy. Additionally, neither child was on a restrictive diet or participating in any other weight reduction program.

Therapist

The author served as the experimenter for both subjects and was serving as a school psychology intern as part of the doctoral clinical training program at SUNY Binghamton. The experimenter had prior experience in conducting behaviorally oriented adult obesity groups prior to the present study.

Materials

A commercial bathroom scale, a Detecto Medic school scale, calorie counting booklets (Abbott Diet Diary), daily weight graphs, mimeographed behavior management and stimulus control instructions (adopted from Romanczyk, 1974, b), daily exercise instructions and silver dollars.

Procedure

Each subject met individually with the experimenter one time per week for sixteen weeks, with each session lasting approximately 10 minutes. Each session commenced with the subject being weighed in on the school scale.

Treatment

The treatment program consisted of programmed behavior management and stimulus control instructions, self monitoring of daily weight and caloric intake, exercise and nutritional counseling, therapist social reinforcement for subjects' weight maintenance and/or loss and a token reinforcement program in which subject could earn silver dollars by meeting established criteria.

Introduction of the various treatment components was done in a gradual fashion in order not to overwhelm the children with information and assignments. At the first meeting contingency guidelines for earning rewards (silver dollars) was negotiated between subject and experimenter. It was established that throughout the study each subject would earn one silver dollar for each weekly weight loss of 2 pounds or more, and one silver dollar for satisfactory completion of assignments during the first four weeks of the program. This latter contingency was established in order to enhance the subjects interest in the program. Beginning with the first session and in each subsequent session the subject was given 2 or 3 mimeographed stimulus control instructions and one mimeographed exercise outline. The subjects were informed that the instructions were to be used together (i.e., simultaneously with the preceding ones). Similar statements were made with regard to the exercises. Beginning with the first session and continuing for 5 consecutive sessions, each subject was given graph paper and taught how to weigh themselves at home daily and plot their weight. Subjects were requested to bring their completed graphs to each of the following sessions. From session 4 through 8, subjects were provided with small pocket calorie notebooks and told to keep a running cumulative total of daily caloric intake of their snacks. Social reinforcement in the form of enthusiastic experimenter praise was presented throughout the study whenever a subject either maintained his previous weeks' weight or lost weight. If a subject gained weight the experimenter provided no social reinforcement but rather attempted to give encouragement for the following week.

Results and Discussion

Three baseline measurements were obtained over a 30 month period for each subject from school health records. The average monthly weight gain during baseline for Subject 1 and Subject 2 was 1.87 pounds and 1.63 pounds respectively. An examination of the actual recorded measurements indicates that a consistently increasing pattern of weight gain was present for both subjects (Figure 1). During the 16 week treatment program both Subject 1

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and Subject 2 gained a total of 1.5 pounds or an average of .4 pounds per month. This slight weight gain is in extreme contrast with each child's expected weight gain based upon baseline trends (Table 1). The actual pattern of weight change for each subject is shown in Figure 2. There was considerable

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variability in weight change both between and within individual subjects over

Insert Figure 2 about here

the course of the treatment program. It should be noted from Figure 2 that during three separate weeks, Subject 1 was able to lose 2 pounds or more, while Subject 2 lost 2 pounds or more during two separate weeks. While this does not overshadow the overall increase in weight it does suggest that weight reduction of this quantity is possible and that some components of the treatment package are effective.

The present study demonstrated that while a behavioral treatment program was not effective in reversing the increasing obesity of two adolescent boys, it was successful in reducing the rate of weight gain. Each subject's monthly weight gain was not only markedly lower than baseline gains but was also lower than the .75 pound per month mean weight gain expected for children this age (Falkner, 1962). When each child's increase in height (Subject 1, 3/4 in.; Subject 2, 1/2 in.) is considered along with the fact that adolescence is the time when a child's body mass changes faster than anytime since his first year of life, the decreased weight gain becomes more impressive. The lack of weight loss achieved by the two subjects in this study is in marked contrast to the substantial weight reduction reported in earlier case studies involving obese adolescents. In both the Foxx (1972) and Dinoff, Rickard and Colwick (1972) study the subject was in a residential setting and was placed on a restricted diet throughout the course of treatment. In addition to the restricted diet the subject in the Dinoff, et al. (1972) study had to have the types and size of his food servings approved by an adult before eating. The present treatment program did not attempt to directly control the child's choice of food, but rather placed the main emphasis on changing individual eating habits. Additionally, the implementation of this treatment program required considerably less professional time than earlier programs.

The strategy of employing behavioral techniques shown to be effective in treating obese adults to obese children appears to warrant further research. It is clear, however, from the results of this study that we need to develop treatment programs specifically for the obese child population. Systematic

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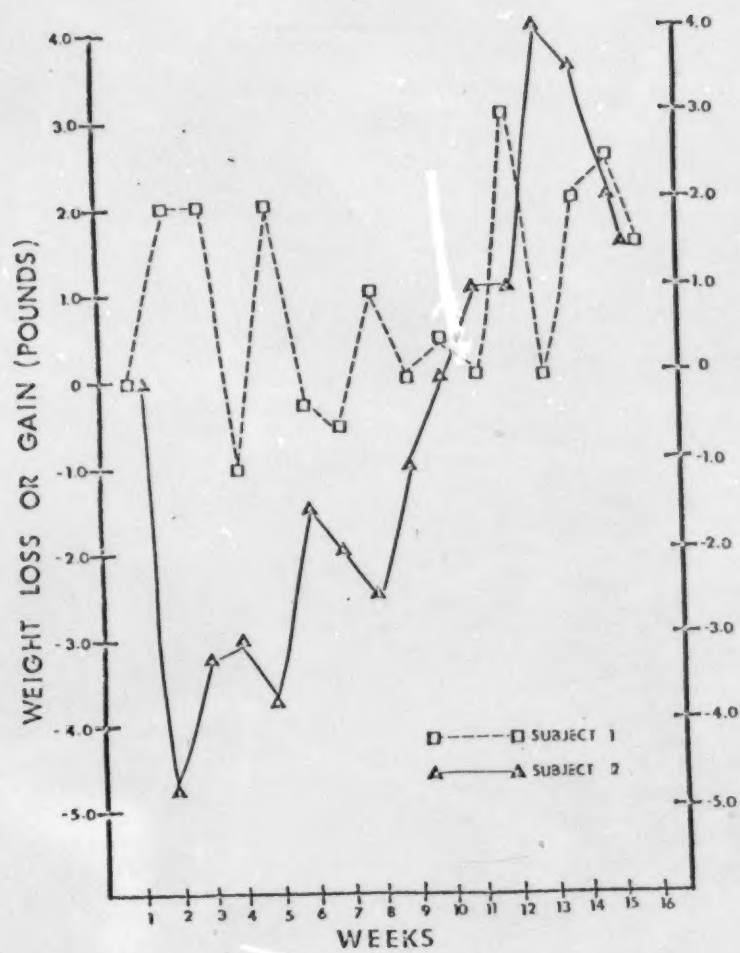


Figure 2

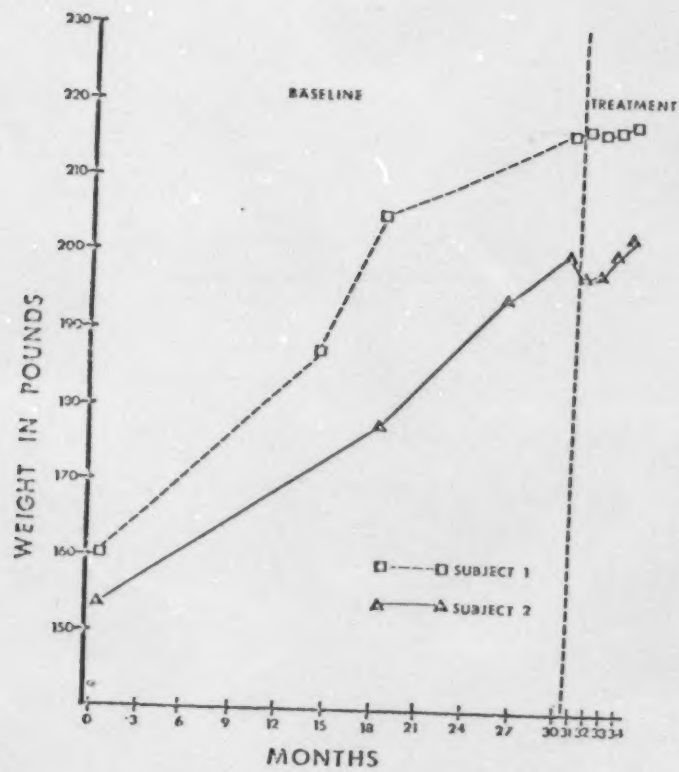


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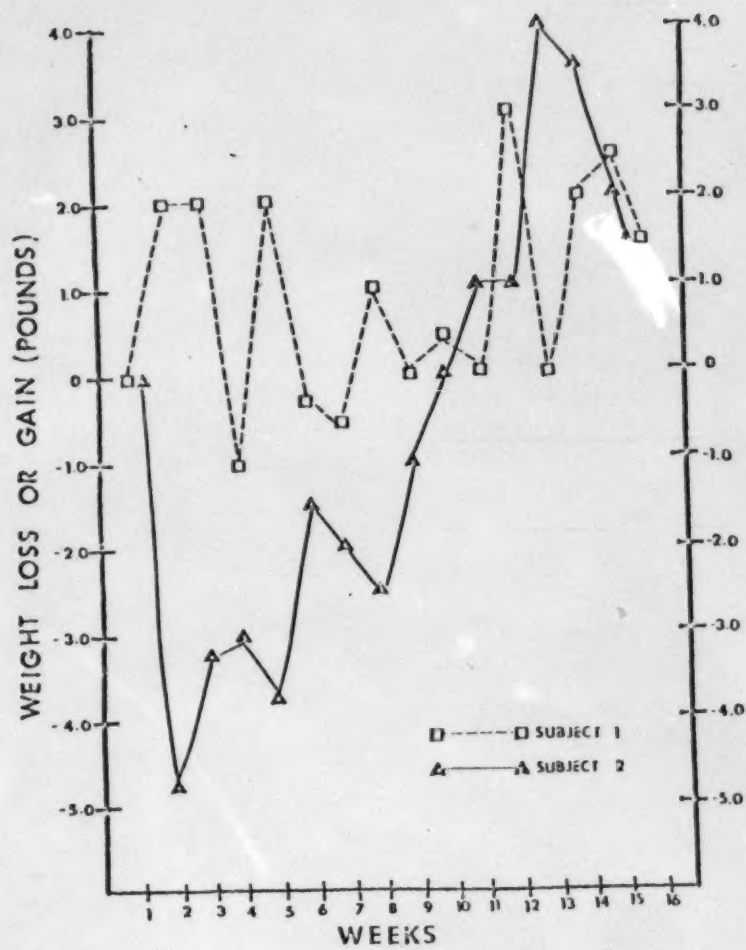


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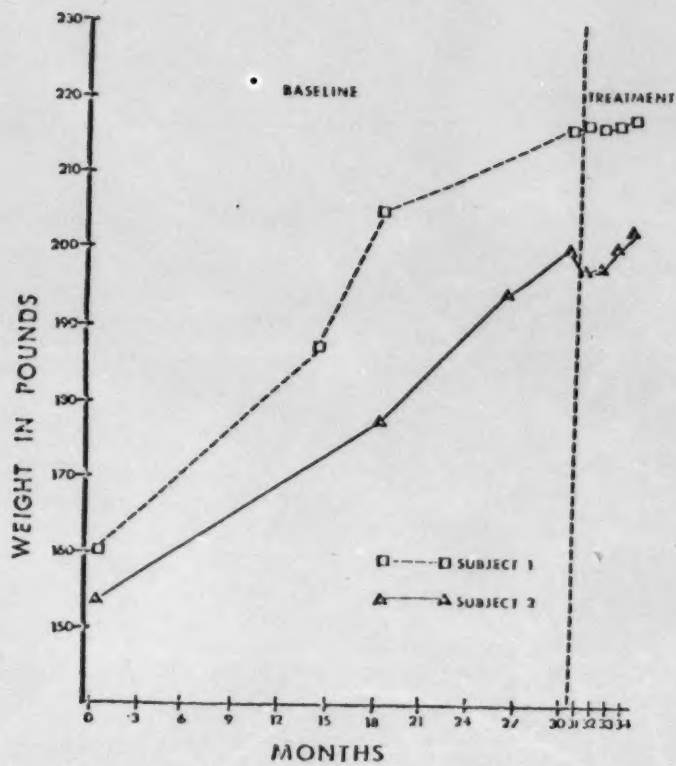


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